FORESTRY ABSTRACTS

Volume 35

Prepared by

Commonwealth Forestry Bureau, Oxford

1974

ISSN 0015-7538

8.8.

© Commonwealth Agricultural Bureaux 1975

All rights reserved. No part of this publication may be reproduced in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without the prior permission of the copyright owner.

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from The Royal Society, 6 Carlton House Terrace, London, S.W.1.

published by

Commonwealth Agricultural Bureaux,
Farnham House, Farnham Royal,
SLOUGH SL2 3BN, UK.

Printed by
The Cambrian News Ltd., Queen Street, Aberystwyth, Wales, UK

CONTENTS

ABSTRACTS
Arranged by the Oxford system of decimal classification for forestry

0.	General	1	45	63	119	207	273	329	401	473	553	641	723
1.	Factors of the environment. Biology	1	45	63	120	208	273	330	402	473	554	642	723
	10. General	1	–	–	–	208	273	330	–	–	554	–	–
	11. Site factors	1	45	63	120	208	273	330	402	473	554	642	723
	111. The atmosphere. Meterology. Climate and microclimate ...	1	45	63	120	208	273	330	402	473	554	642	723
	114. Soil. Soil science	2	45	64	120	208	273	330	402	474	554	642	723
	116. Hydrology. Water conservation, soil conservation and erosion	3	–	66	124	209	273	331	404	475	556	644	725
	14. Systematic zoology	3	–	67	125	210	275	333	405	476	557	–	–
	15. Animal ecology. Game and fish management; hunting, shooting and fishing ...	3	–	67	126	211	275	333	405	476	557	645	726
	16. General botany (incl. heredity, genetics and breeding; variation)	3	–	67	126	211	276	333	405	476	558	646	726
	17. Systematic botany	7	47	72	133	217	279	339	412	481	564	648	730
	18. Plant ecology	8	47	73	134	218	280	340	413	482	565	649	731
	181. Mode of life, autecology. Silvicultural characters ...	8	–	73	134	218	280	341	413	482	565	649	731
	181.1. Distribution, natural range	8	47	73	134	218	280	341	413	482	566	649	731
	181.2. Atmospheric relations. Acclimatization ...	8	47	74	134	218	281	341	413	483	566	650	731
	181.3. Water, soil and root relations	9	48	74	136	218	281	342	415	483	566	650	732
	181.4. Reaction to biotic influences and fire	10	48	75	140	221	282	344	416	486	568	652	734
	181.5. Reproductive behaviour	10	48	75	141	221	282	344	417	486	568	652	735
	181.6. Life form, habit. Post-seedling development and form	12	48	76	142	222	283	345	418	487	569	653	736
	181.7. Duration, longevity; stature; effects of age	12	–	–	–	223	283	346	418	–	570	654	736
	181.8. Phenology	12	48	77	143	223	283	346	418	487	570	654	736
	182. Synecology, plant sociology: general, principles and methods ...	13	48	77	144	223	283	346	419	487	570	654	736
	187. Vegetation types	13	48	77	145	224	284	347	419	488	571	655	737
2.	Silviculture	13	48	78	146	225	285	349	421	490	573	656	737
	22. Silvicultural systems. Constitution and composition of stands; forms of stand	13	48	79	146	225	286	349	421	491	574	656	737
	23. Regeneration and formation of stands	14	49	79	147	226	286	350	421	492	574	657	738
	230. Forms of regeneration	–	–	–	–	–	–	–	–	–	–	–	–
	231. Natural regeneration	14	49	79	147	226	286	350	421	492	574	659	738
	232. Artificial regeneration	–	–	–	148	–	–	350	421	492	–	658	–
	232.1. Choice and trial of species, races etc.	14	49	79	148	226	286	350	422	493	575	658	739
	232.2. Preparatory work, auxiliary measures	15	–	81	149	227	288	351	423	494	576	660	740
	232.2. Seed; nursery practice; direct sowing	15	49	81	150	228	289	351	423	495	577	660	740
	232.4. Formation of stands by planting ...	17	49	83	153	231	291	354	426	498	580	663	743
	232.5. Artificial formation of stands by direst vegetative propagation	–	–	84	155	–	–	–	–	–	–	664	745
	233. Afforestation (of particular types of land)	18	49	84	155	232	292	356	427	499	581	664	745
	234. Formation of forest by natural succession	–	–	–	–	–	–	–	–	499	–	–	745
	235. Underplanting, advance planting etc. Nurses and formation of mixtures	18	49	84	155	232	292	356	428	499	581	664	745
	236. Care of regeneration or plantations in the initial stages	18	50	84	155	232	292	356	428	499	581	664	745
	237. Amelioration of forest sites ...	18	50	84	156	232	292	356	428	500	582	665	745
	238. Timber (e.g. Poplar) plantation crops requiring special treatment	–	50	85	157	–	292	357	429	501	583	666	746
	24. Tending of stands and trees	19	50	85	157	233	293	357	429	501	584	666	746
	25. Treatment of defective, derelict or very open stands	19	–	–	–	234	293	358	–	–	–	–	747
	26. Combinations of forestry with agriculture and pastoral husbandry (including shelter belts and their treatment) ...	20	50	85	158	234	293	358	430	502	584	667	747
	27. Arboreta. Arboriculture for ornamental purposes. Hedges and hedge plants	20	50	86	159	235	294	359	431	503	585	668	748
	28. Husbandry of forest products other than wood	20	–	86	159	235	294	359	431	503	585	668	748
3.	Work science (work studies). Harvesting of wood: logging and transport. Forest engineering	20	50	86	160	235	294	360	431	504	585	669	749

4.	Forest injuries and protection	21	51	89	163	237	296	363	435	508	588	674	751
	41. General technique of forest protection. Types of injury	21	51	89	163	238	296	363	435	508	588	674	751
	42. Injuries from inorganic agencies (excluding fire)	21	–	89	163	238	296	363	436	508	590	674	751
	43. Forest fires	22	–	90	165	239	297	364	437	510	590	675	753
	44. Damage by harmful plants, including fungi and bacteria. Virus diseases [and mycoplasmas]	23	51	91	166	241	298	365	438	511	591	676	755
	45. Damage by animals	25	51	93	170	243	302	368	440	515	595	679	761
	451. Mammals	25	51	93	170	243	302	369	440	515	595	679	761
	452. Birds	–	–	93	170	–	302	–	–	515	–	–	–
	453. Insects	26	51	93	170	244	302	369	441	516	596	679	761
	459. Other animals	27	–	97	177	249	306	372	445	521	603	682	765
	46. Damage to tree growth by man ...	27	–	98	177	249	306	372	445	521	604	683	766
	48. Injuries due to unknown or complex causes (arranged by tree species) ...	28	–	98	–	249	306	–	–	521	604	683	766
5.	Forest mensuration. Increment; development and structure of stands. Surveying and mapping	28	53	98	178	–	306	373	445	522	604	683	766
	51. Systems and units of measurement ...	–	–	–	–	–	–	–	–	–	–	–	766
	52. Measurements of dimensions and volume of trees, stands and logs	28	–	98	178	249	306	373	445	522	604	683	766
	53. Special measurements (crown dimensions, stand density etc.)	29	53	99	180	251	308	374	446	523	605	684	767
	54. Assessment of site quality	29	54	99	180	251	308	374	446	523	606	684	768
	55. Age determination	–	–	–	–	–	–	–	446	–	606	684	–
	56. Increment. Development and structure of stands	29	–	99	180	251	309	375	446	523	606	684	768
	58. Surveying and mapping. Aerial survey	31	–	100	182	252	309	377	448	524	609	685	769
6.	Forest management. Business economics of forestry. Administration and organization of forest enterprises ...	31	54	100	182	252	310	377	448	525	609	686	769
7.	Marketing of forest products. Economics of forest transport and the wood industries	32	55	101	183	253	311	379	450	526	610	687	771
8.	Forest products and their utilization	32	55	101	184	254	311	380	450	526	611	688	771
	81. Wood and bark; structure and properties	32	–	101	184	254	311	380	450	526	611	688	772
	810. General information on woods	32	55	101	184	254	311	380	450	526	611	688	772
	811. Structure and identification ...	32	55	102	185	255	312	380	451	527	611	689	772
	812. Physical and mechanical properties	33	56	103	186	256	313	382	454	529	613	691	773
	813. Wood chemistry	34	56	105	189	257	315	383	455	531	614	693	775
	814. Natural durability. Old and fossilized wood	35	56	105	190	258	315	385	457	533	615	694	776
	815. Effect of growth factors on structure and properties ...	35	56	106	190	258	315	385	457	533	615	694	776
	82. Conversion, shaping, assembly and finishing of wood: general	35	57	106	190	258	316	386	458	533	616	694	777
	83. Timber manufacturing industries and products. Uses of wood as such ...	36	57	107	193	260	317	388	460	536	619	696	777
	84. Preservative and other treatments to improve the properties of wood. Damage by biological agencies and its control. Seasoning. Timberyard practice (handling and storage) ...	38	58	108	195	212	319	390	461	538	620	698	778
	85. Grading of wood and wood products ...	39	59	111	198	264	322	393	465	544	624	702	782
	86. Pulp industries. Composite materials made wholly or partly of woody matter. Chemical utilization of wood	40	59	112	198	265	323	394	465	545	624	703	782
	88. Economy in the use of wood. Replacement of wood by competitive materials	–	–	–	–	267	325	–	467	–	–	705	–
	89. Minor forest products	41	61	114	202	267	325	396	467	547	–	705	784
9.	Forests and forestry from the national point of view. Social economics of forestry ...	42	61	114	203	268	325	397	470	549	629	706	785
	90. General: history, policy, regional accounts, statistics, indirect significance of forests	42	61	114	203	268	325	397	470	549	629	706	785
	91. Land use, land-use policy. Afforestation policy	42	62	116	204	270	326	398	471	–	631	707	787
	92. Forest ownership and ownership policy	43	62	–	205	270	327	399	471	–	631	707	–
	93. Public supervision and regulation of forestry, including legislation for these purposes	–	–	116	205	270	–	399	472	–	631	707	787
	94. Other methods to implement forest policy: subsidies, credits, insurance, cooperation, advisory and information services, publicity, education and research. Associations, conferences etc.	43	–	116	205	270	327	399	472	–	631	707	787
	95. Forest taxation	–	62	116	–	–	–	399	–	–	–	708	–
	96. Forest labour questions; labour questions in wood transport and the wood industries	43	–	117	206	271	327	399	472	552	–	–	787
	97. International forest policy and other international collaboration ...	43	–	117	206	271	327	399	472	552	632	708	788

AUTHOR INDEX 791
SPECIES INDEX 821
SUBJECT INDEX 855

READERS' GUIDE

1. **Classification.** Abstracts are classified according to the *Oxford System of Decimal Classification for Forestry* (ODC). *See inside front cover.* Editions of this publication are also available from other sources in a number of languages.

2. **Terminology.** Terms appearing in the *Concise Oxford Dictionary* and Chambers' *Dictionary of Science and Technology* are ordinarily used in the text without explanation. The *Terminology of Forest Science, Technology, Practice and Products* and the *British Commonwealth Forest Terminology* are followed for forestry terms.

3. **Title Citations:**

(a) Titles. Titles of articles appearing in periodicals or numbered serial publications are given in English only (translated if the original is not in English); titles of books and all unnumbered publications are given both in the original language and in English.

(b) Language symbols. Capital initial letters indicate the language of the text, small letters the language(s) of the summary. The following abbreviations are used:

Af	= Afrikaans	Fr	= French	Nl	= Dutch
Ar	= Arabic	Gr	= Greek	No	= Norwegian
Be	= White Russian	He	= Hebrew	Pl	= Polish
Bg	= Bulgarian	Hu	= Hungarian	Pt	= Portuguese
Ch	= Chinese	In	= Indonesian	Ro	= Rumanian
Cs	= Czech	Is	= Icelandic	Ru	= Russian
Da	= Danish	It	= Italian	Sh	= Serbo-Croatian
De	= German	Ja	= Japanese	Sk	= Slovakian
Ee	= Estonian	Ko	= Korean	Sn	= Slovenian
En	= English	Li	= Lithuanian	Sv	= Swedish
Es	= Spanish	Lv	= Latvian	Tr	= Turkish
Fi	= Finnish	Ma	= Macedonian	Uk	= Ukrainian

(c) Library Source. Capital letters at the end of a reference, where present—e.g. PR, ORS, etc.—show the place where the actual publication seen by the Bureau is lodged. Where no capital letters are cited the publication is lodged in the library of the Commonwealth Forestry Institute, Oxford. The following abbreviations are used:

APB	Commonwealth Bureau of Pastures and Field Crops, Hurley, Nr. Maidenhead, Berks.
BLL (formerly NLL)	British Library Lending Division, Boston Spa, Wetherby, Yorkshire LS23 7BQ
CFB (formerly IFB)	Commonwealth Forestry Bureau, South Parks Road, Oxford OX1 3RD
CGB	Commonwealth Bureau of Plant Breeding and Genetics, Department of Applied Biology, Downing Street, Cambridge.
CIE (formerly IIE)	Commonwealth Institute of Entomology, 56 Queen's Gate, London SW7 5JR
CMI (formerly IMI)	Commonwealth Mycological Institute, Ferry Lane, Kew, Richmond TW9 3AF
EMB	Commonwealth Bureau of Horticulture and Plantation Crops, East Malling Research Station, Kent.
HSB	Rothamsted Experimental Station, Harpenden, Herts.
LTP	Tropical Products Institute, 56/62 Gray's Inn Road, London, W.C.2.
OAEc.	Agricultural Economics Research Institute, Dartington House, Little Clarendon Street, Oxford.
OB	Bodleian Library, Oxford
OBD	Dept. of Botany, South Parks Rd., Oxford.
OH	Hope Dept. of Entomology, University Museum, Parks Road, Oxford.

ORE	Department of Agriculture, Parks Road, Oxford.
ORS	Radcliffe Science Library, South Parks Road, Oxford.
OW	ARC Weed Research Organisation, Yarnton, Oxford, OX5 1PF.
OZ	Department of Zoology, Oxford.
PO	National Reference Library of Science and Invention, 25 Southampton Buildings, Chancery Lane, London, W.C.2.
PR	Building Research Establishment, Princes Risborough Laboratory, Aylesbury, Bucks.
Reinbek	Bundesforschungsanstalt fur Forst- und Holzwirtschaft, Reinbek, W. Germany.
TRADA	Timber Research and Development Association, Hughenden Valley, High Wycombe, Bucks.
X	Miscellaneous;apply to Commonwealth Forestry Bureau for details.

4. Abbreviations and Symbols

(a) Abbreviations include:

a.e.	= acid equivalent	g.b.h.	= girth, breast height	oz	= ounce(s)
a.i.	= active ingredient			p.a.	= per annum
b.a.	= basal area	hp	= horse-power	p.a.	= periodic annual increment
bd ft	= board foot (feet)	ht.	= height		
b.h.	= breast height	lb	= pound(s) (weight)	p.p.m.	= parts per million
ca.	= *(circa)* approximately	LC or LD	= lethal concentration or lethal dose	r.h.	= relative humidity
				s.l.	= *sensu lato*
c.a.i.	= current annual increment	m.a.i.	= mean annual increment	sp.gr.	= specific gravity
				s.s.	= *sensu stricto*
cf.	= *(confer)* compare			u.b.	= under bark
cv(s).	= cultivar(s)	min	= minutes	viz.	= *videlicet* ; namely
d.b.h.	= diameter, breast height	m.c.	= moisture content	vs.	= *versus*; compared with
		o.b.	= over bark		
gal	= gallon(s)			wt.	= weight
(1 US gal	= 0.84 English gal)			Also *FA*	= Forestry Abstracts.

(b) Symbols include:

∥	= parallel (in timber testing, 'parallel to grain')	⊁	= not greater than
		⊀	= not less than
⊥	= at 90° ; perpendicular (in timber testing, 'perpendicular to grain')	×	(with scientific names) = hybrid
		+	(with scientific names) = graft chimaera; asexual hybrid
≃	= approximately equals		
>	= greater than	♂(s)	= male(s)
<	= less than	♀(s)	= female(s)
⩾	= equal to or greater than	☿(s)	= hermaphrodite(s)
⩽	= equal to or less than		

5. Dissertation Abstracts International

Copies of these notices can, unless otherwise stated, be obtained from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. Details of order number are given for each entry. The standard price (from January, 1971) is $4.00 for copies on microfilm, $10.00 for xerographic reproduction. All theses listed in this publication since 1970 are available on loan to readers in the UK from the BLL.

6. Back and Cross References:

(a) Back references to notices in previous issues of *Forestry Abstracts* are given in square brackets in the text and indicate the volume and abstract number, e.g. [cf. *FA 26*, 1473] – except for Vols. 1 to 5, in which the author's name and page number are cited.

(b) Cross references to notices appearing in the same number of *Forestry Abstracts* are given under the classification headings.

e.g. **864. Utilization of Lignin**
See also absts. 5769, 6062.

Cross references may also occur in the text of abstracts.

CAB

The Commonwealth Agricultural Bureaux (CAB), a co-operative venture established by the Commonwealth, provides the only comprehensive information service for agricultural research workers. This is based on a series of 20 abstract journals which cover the whole range of agricultural science. These journals have a large, world-wide readership.

Other services provided by CAB include:

bibliographies, with or without annotations.

review articles.

publication of technical monographs, some of which are standard works.

answering enquiries arising from any aspect of agricultural science (charges being made where extensive research is required).

photocopies.

provision of identification services for entomologists, mycologists and helminthologists.

control of animal and plant pests by their natural enemies (i.e. biological control services)

The work of CAB is largely carried out through a number of Institutes and Bureaux, each dealing with a particular aspect of agricultural science. The abstract journals are produced using computer methods, and the whole data base, from the beginning of 1973 onwards, is in computer-readable form. Experimental tapes covering the field of animal health are already available; tapes for other subject areas will become so progressively.

Enquiries should be sent as follows, to the addresses listed below:-

(i) any aspect of agricultural science – to the appropriate Institute or Bureau Director.

(ii) the computerized system, magnetic tapes, or services arising therefrom – to the Systems Manager, Farnham House.

(iii) CAB publications – to Central Sales Branch, Farnham House.

(iv) general or administrative matters – to the Secretary, Farnham House.

Liaison Officers in the member countries welcome comments, suggestions or enquiries on CAB services.

Institutes

Commonwealth Institute of Entomology, 56 Queen's Gate, London SW7 5JR
Director: R.G. Fennah, ScD, MA, AICTA, FIBiol.
Commonwealth Mycological Institute, Ferry Lane, Kew Richmond TW9 3AF
Director: A. Johnston, BSc, AICTA, FIBiol.
Commonwealth Institute of Biological Control, Gordon Street, Curepe, Trinidad, West Indies
Director: F.J. Simmonds, MA, PhD, DSc, FRSA.
Commonwealth Institute of Helminthology, The White House, 103 St. Peter's Street, St. Albans, Herts.
Director: Miss S.M. Willmott, PhD, FIBiol.

Bureaux

Agricultural Economics, Dartington House, Little Clarendon Street, Oxford OX1 2HH
Director: J.O. Jones, MA.
Animal Breeding and Genetics, Animal Breeding Research Organization, The King's Buildings, West Mains Road, Edinburgh EH9 3JX
Director: J.D. Turton, BSc, MRCVS, DTVM.
Animal Health, Central Veterinary Laboratory, New Haw, Weybridge, Surrey
Acting Director: R. Mack, FRCVS.
Dairy Science & Technology, National Institute for Research in Dairying, Shinfield, Reading RG2 9AT
Director: E.J. Mann, NDD, CDD.
Forestry, Commonwealth Forestry Institute, South Parks Road, Oxford OX1 3RD
Director: P.G. Beak, MBE, MA.
Horticulture & Plantation Crops, East Malling Research Station, Maidstone ME19 6BJ, Kent.
Director: G.E. Tidbury, BSc, ARCS, AICTA, FIBiol.
Nutrition, Rowett Research Institute, Bucksburn, Aberdeen AB2 9SB.
Director: Miss D.L. Duncan, BSc, PhD.
Pastures & Field Crops, Hurley, Maidenhead SL6 5LR.
Director: P.J. Boyle, MA
Plant Breeding & Genetics, Department of Applied Biology, Downing Street, Cambridge CB2 3BX
Director: R.H. Richens, MA, PhD.
Soils, Rothamsted Experimental Station, Harpenden AL5 2JQ
Acting Director: B. Butters, MSc, DipAgr, DTA, DIC, ARCS.

Headquarters, Central Sales Branch and Systems Group

Farnham House, Farnham Royal, Slough SL2 3BN. UK

Secretary, CAB: E.A. Runacres
Systems Manager: G.A. Somerfield, MA, BSc, DPhil

Finance and organization

CAB's finance comes from the income from the sale of its journals and other services and from contributions made by each of the member countries, according to a formula agreed from time to time by those members.

The organization is controlled by an Executive Council composed of nominees of the various Commonwealth Governments, including one for the Dependent Territories. On the following pages is shown a list of the present members of the Executive Council, together with the names of the Liaison Officers, who form the primary link in the member countries.

EXECUTIVE COUNCIL

(as at 25 October, 1974)

Member	*Representing*
R.D. CROLL (Chairman)	Australia
T.N. TANDON (Vice-Chairman)	India
G.M.P. MYERS	United Kingdom
J.W. GREENWOOD	Canada
C.M. PALMER	New Zealand
(To be nominated)	Sri Lanka
J.G. BAETA	Ghana
MRS. A.Z. ABIDIN	Malaysia
THE FIRST SECRETARY	Nigeria
M. EROTOKRITOS	Cyprus
H.E. THE HIGH COMMISSIONER	Sierra Leone
Y. OSMAN	Tanzania
THE DEPUTY HIGH COMMISSIONER	Jamaica
P. HEZEKIAH	Trinidad & Tobago
THE AGRICULTURAL ATTACHE	Uganda
H.E. THE HIGH COMMISSIONER	Kenya
M.V. PHIRI	Malawi
THE TRADE COMMISSIONER	Zambia
B.A. BALDEH	The Gambia
R.E. CHANDISINGH	Guyana
H.E. THE HIGH COMMISSIONER	Botswana
THE DEPUTY HIGH COMMISSIONER	Barbados
J.G. FOKEER	Mauritius
R.M. MOTSA	Swaziland
(To be nominated)	Fiji
Q.A.M.A. RAHIM	Bangladesh
H.E. MR. A.R. BRAYNEN	The Bahamas
W.D. MANICE	Dependent Territories

D.G. THOMAS, Secretary, Commonwealth Scientific Committee (Observer)

E.A. RUNACRES (Secretary) ... ... Farnham Royal, Slough, SL2 3BN

LIAISON OFFICERS

Contributing country	*Liaison Officer*	*Address*
United Kingdom	Under Secretary	Agricultural Research Council, 160, Great Portland Street, London W1N 6DT
Canada	G.M. Carman, BSA, MSc, PhD.	Director, Information Division, Administration Branch, Canada Department of Agriculture, 1105, Sir John Carling Building, Ottawa, Ontario, K1A 0C7
Australia	P.F. Butler, MAgrSc.	Assistant Secretary, (Agricultural & Biological Sciences) Commonwealth Scientific and Industrial Research Organization, PO Box 225, Dickson, A.C.T. 2602.
New Zealand	G.W. Butler, MSc, Fildr, FRSNZ	Assistant Director-General, Department of Scientific and Industrial Research, Private Bag, Wellington.
India	M.S. Swaminathan, BSc, BScAgr, PhD, AIARI, FNI	Director-General, Indian Council of Agricultural Research, Krishi Bhavan, New Delhi 1.
Sri Lanka	J.W.L. Peiris, PhD, DIC, DipAgr.	Deputy Director of Agriculture (Research) Central Agricultural Research Institute, Gannoruwa, Peradeniya.
Ghana	General Secretary	Council for Scientific and Industrial Research, PO Box M.32, Accra

Malaysia	Permanent Secretary	Ministry of Agriculture and Co-operatives, Swettenham Road, Kuala Lumpur.
Nigeria	Secretary	Agricultural Research Council of Nigeria, Private Mail Bag 5382, Moor Plantation, Ibadan.
Cyprus	R. Chr. Michaelides, BScAgr, NDA, DipAgrEc.	Director-General, Ministry of Agriculture and Natural Resources, Nicosia.
Sierra Leone	Research Co-ordinator	Njala University College, Njala.
Tanzania	Director of Agriculture	PO Box 9071, Dar-es-Salaam.
Jamaica	L.E. McLaren, BSc, MRCVS, PhD, MIBiol.	Technical Officer, Ministry of Agriculture, PO Box 480, Kingston 6.
Trinidad & Tobago	Chief Technical Officer (Agriculture)	Ministry of Agriculture, Lands and Fisheries, St. Clair Circle, Port-of-Spain, Trinidad.
Uganda	Commissioner of Agriculture	Ministry of Agriculture, Forestry and Co-operatives, Department of Agriculture, PO Box 2, Entebbe.
Kenya	Under Secretary	Ministry of Agriculture, PO Box 30028, Nairobi.
Malawi	P. Brown, BA, DTA.	Chief Agricultural Research Officer, Ministry of Agriculture, PO Box 303, Zomba.
Zambia	Permanent Secretary	Ministry of Rural Development, PO Box RW. 197, Lusaka.
The Gambia	L.J. Marenah, BScAgr, PhD, DipAgr, DTA.	Director of Agriculture, Department of Agriculture, Cape St. Mary.
Guyana	H.A.D. Chesney	Principal Agricultural Officer (Research) Ministry of Agriculture and Natural Resources, Central Agricultural Station, Mon Repos, East Coast Demerara.
Botswana	The Permanent Secretary	Ministry of Agriculture, Private Bag 3, Gaborone.
Barbados	Chief Agricultural Officer	Ministry of Agriculture, Commerce, Science and Technology, Crumpton Street, Bridgetown.
Mauritius	B.D. Roy	Chief Agricultural Officer, Agricultural Services, Reduit.
Swaziland	O.Z. Dhlamini	Under Secretary, Office of Permanent Secretary, Ministry of Agriculture, PO Box 162, Mbabane.
Fiji	Secretary	Agriculture, Fisheries and Forests, Suva.
Bangladesh	A.H.M.A. Hye	Deputy Secretary (Development), Ministry of Agriculture, Government of Bangladesh, Dacca.
The Bahamas	The Permanent Secretary	Ministry of Agriculture & Fisheries, PO Box 28, Nassau, The Bahamas.
Dependent Territories	A.R. Melville, CMG, BSc, AICTA	Agricultural Adviser, Overseas Development Administration, Eland House, Stag Place, London, SW1E 5DH
Irish Republic	D.O'Muirthile	Assistant Principal Officer, Department of Agriculture and Fisheries (Development Division), Upper Merrion Street, Dublin 2.

COMMONWEALTH FORESTRY BUREAU

South Parks Road, OXFORD OX1 3RD

All correspondence regarding *Bureau publications, subscriptions and purchase* should be addressed as indicated on the *outside back cover.* Correspondence on *other matters* within the scope of this Bureau should be addressed to—

The Director, Commonwealth Forestry Bureau, South Parks Road, Oxford, England

STAFF

Consultant Director Professor J.L. Harley, M.A., D.Phil., F.R.S.
Director P.G. Beak, M.B.E., M.A. *Asst. Director* W. Linnard, M.A., Dip.For.
Scientific Information Officers Mrs. C.A. Davis, M.Sc., M.Phil., C.A.D. Elbourn, M.Sc., A.H. Hyde, B.A., D.Phil., Mrs. S.A. Leplar, B.A., Miss. M. Lynn, B.A., B.E. St. L. Stuart. M.A.
Other contributors J.M. Dinwoodie, B.Sc., Ph.D., C.E. Duff, C.B.E., M.A., R.H. Farmer, B.A., D.Sc., Miss L. Gombrich, Dr.Jur., Mrs. R.R. Inston, B.A., Miss E. Rogerson, B.A.,

PUBLICATIONS

Forestry Abstracts

Published monthly. For subscription rates, which include detailed annual indexes (author, species, subject and geographical) *see outside back cover.*

Index to Vols. 1 to 5:	Part 1 Author and Species	£0.50
	Part 2 Subject and Geographical	£1.25

Weekly Card Title Service (CTS)

A quick-service postal auxiliary to the Abstracts, bringing to subscribers four times a month exact copies of the index cards made from the world stream of forestry literature during the Bureau's day-to-day work. Total about 8500 annually. Full particulars and samples from: The Director, Commonwealth Forestry Bureau, Oxford.

Oxford System of Decimal Classification for Forestry (ODC)

As approved by IUFRO, FAO and FID. Price £0.75.

Russian-English Forestry and Wood Dictionary

(Technical Communication No. 6, 1966)

Contains translations of over 7000 terms, supplemented where necessary by definitions and explanations, covering all aspects of forestry and the structure, conversion and utilization of wood, and includes the main forest plants and animals, with their scientific names. pp. 109. Price £1.75.

Form and development of conifer root systems

(Technical Communication No. 7, 1969)

A critical review of the literature (more than 600 refs.). Price £0.50.

Wood density in conifers

(Technical Communication No. 8, 1970)

A literature review (339 refs.) covering: methods of measurement, the pattern of whole-ring density within the tree, variation of basic density between trees and the influence of silvicultural practice. pp. 44. Price £0.50.

Leading Article Series: most recent reprints

No. 40	Mist precipitation on vegetation (1968)	£0.50
42	Cultivation of Eucalypts in the U.S.S.R. (1969)	£0.50
43	The effect of geographical factors on the distribution of vegetation in tropical countries (1970)	£0.50
44	The flooding tolerance of woody species—a review (1970)	£0.75
45	Fungi and insects on Sitka Spruce (1974)	£1.00

ERRATA

(lines are counted from the beginning of the bibliographic data in each item.)

Volume 28

Page	*Abstract*	*Line*	
120	956	12	for '*incisor*' read '*invisor*'

Volume 30 Author Index

798			after 'Kalašnikov, P.L.' for '3345' read '3245'
803			after 'Little, C.H.A.' for '1953' read '1853'

Volume 31

716	5995	1	for 'PRANCE, J.T.' read 'PRANCE, G.T.'

Author Index

929			for 'Prance, J.T.' read 'Prance, G.T.'
936			after 'Smolin, V.Y.' insert 'Smoljak, L.P. 6367' and 'Smoljanickaja, L.B. *see* Fadin, I.A.'
936			after 'Solbraa, T.' delete 'Smoljak, L.P. Smoljanickaja, L.B.'

Volume 32 Author Index

881			after 'Alexander' insert 'Alexandrēs, S.G. 3919, 5608'
893			after 'Fox, J.E.D.' insert '1211, 1837'
894			after 'Garilov, C.' for '6788' read '5788, 6628'
894			after 'Garlicki, A.M.' delete 'Garilov, C. 6788'
899			after 'Hung, L.P. and Hwang, K.K.' for '4038' read '4083'

Volume 33

213	1861	3	for '(395-5)' read '(393-5)'
389	3341	5	for '87-81' read '87-91'
545	4628	6	for '2,4,5-T' read '2,4,5-TE'
816	7039	1	for 'ZOLDERS' read 'ZOLDNERS'

Author Index

888			for 'Zolders' read 'Zoldners'

Species Index

898			for '*Koorderosideron pinnatum*' read '*Koordersiodendron pinnatum*'

Volume 34

10	107	1	for 'PHENGKHALAI' read 'PHENGKHLAI'
21	239	1	for 'SOVERSHAEV, P.V.' read 'SOVERSHAEV, P.F.'
28	318	1	for 'BREDBURG' read 'BREDBERG'
30	335	1	for 'BREDBURG' read 'BREDBERG'
39	434	1	for 'ROELOPS' read 'ROELOFS'
91	1016	1	for 'PATYAKING' read 'PATYAKIN'
146	1623	1	for 'VENATORE' read 'VENATOR'
285	3164	10	for '*Iyambo*' read '*Iyamabo*'
315	3465	1	for 'IVERS' read 'IVENS'
319	3511	1	for 'PARAMETER' read 'PARMETER'
327	3590	1	for 'WESTERMACHER' read 'WESTERNACHER'
416	4540	1	for 'IYAMBO' read 'IYAMABO'
426	4643	1	for 'MAGNANAI' read 'MAGNANI'
446	4857	1	for 'TERAZAW' read 'TERAZAWA'
484	5285	1	for 'MAKHMADZËEV' read 'MAKHMADZIËEV'
529	5750	2	for '(1972) 8' read '(1972) 80'
563	6106	25	for 'Boro' read 'Bogor'
585	6325	2	for '8' read '80'
589	6355	4	for '2606-3' read '2602-3'
589	6362	2	for '8' read '80'
590	6370	3	for '8' read '80'

Volume 34 (continued)

Page	*Abstract*	*Line*	
591	6382	1	for 'ELOVAINO' read 'ELOVAINIO'
651	7021	2	for '8' read '80'
655	7068	1	for 'R.W.' read 'P.W.'
663	7153	1	for 'LAMANIE' read 'LAMAMIÉ'

Author Index

703			after 'Giurgiu, V.' insert '3193,'
703			delete 'Giurgui, V. 3193'
708			for 'Lamanié de Clairac' read 'Lamamié de Clairac'

Volume 35

76	722	8	for 'and Section 5, Forest' read 'in 1966 as 1 + 2 transplants'
84	806	5-6	for 'aminotriazole(?) + 2,4,5-T' read 'atrazine + 2,4,5-TE'
150	1487	6	for 'gal/water' read 'gal water/acre'
174	1749	8	for '1973' read '1972'
205	2089	11-12	for 'Buntrock); and progress' read 'Forestry Institute];'
312	3156	4	for '3' read '4'
312	3162	4	for 'No. 3' read 'No. 4'
317	3211	3	for 'No. 3' read 'No. 4'
405	4114	8	after 'authors' insert ', is'
417	4263	7	after 'both' insert 'for'
438	4486	2-3	Citation should read '*French Patent* (1972) No. 2116976'
456	4688	2	for '***hostmannia***' read '***hostmanniana***'
462	4758	7	for 'with' read 'within'
464	4771	7	before 'suspended' insert 'were'
478	4936	6	for 'of Hemlock (*Tsuga canadensis*)' read 'analysis of the events'
499	5156	19	for '*Nathan*' read '*Nather*'
550	5729	7	after 'five' insert 'classes'
550	5733	1	for 'WHILLHITE' read 'WILLHITE'
559	5798	1	for 'ROK'YANIS' read 'ROK"YANIS'
615	6424	14	for '$(NH_4)_2 HPO_4$' read '$(NH_4)_2 HPO_4$'
617	6443	11	for 'stem' read 'system'
618	6455	9	after '–0°30′' insert 'and +3°30′'
652	6730	7	for '*Acer pseudoplatanus*' read '*Acer saccharum*'
665	6860	11	for 'a split application' read 'two applications'
672	6937	6	for '$\geqslant$' read '$\leqslant$'
673	6950	9	for 'greater' read 'less'
762	7748	5&11	for '*fuscedinaella*' read '*fuscedinella*'
762	7749	12	for 'rasites of *Coleophora fuscedinella*, an important' read 'on six caged trees near'
764	7762	1	for 'Birth' read 'Birch'
781	7936	2	for 'Kiln Clubs, Eugene, Oregon' read 'requirements with Aspen'